REMARKS

The Specification has been amended to correct obvious inadvertent typographical errors and to identify trademarks. Claims 3, 12, 17, 18 and 25 have been canceled without prejudice. Claims 1, 2, 4, 5, 11, 16, 20, 23 and 25 have been amended to better claim the invention. New claim 26 is presented; it is supported by as-filed claim 2 and the paragraph bridging pages 58 and 59. None of the amendments made herein constitutes the addition of new matter.

The Requirement for Restriction

The Examiner has made the requirement for restriction final and has required that the claims be limited only to SEQ ID NOs:1 and 2, as elected species. Applicants appreciate that the coding and amino acid sequences are being examined together in this application.

The Specification

The Examiner has objected to the Specification because the Brief Description of the Drawings does not include a description for each of the parts A-D of Figure 3.

Applicants respectfully note that the letters A-D do not refer to separate figures or parts of the figure, but rather to the four sidechains of the backbone of the rhamnogalacturonan molecule. Applicants have attempted to clarify this in the amended description of the figure.

The Specification has been objected to for the inclusion of embedded hyperlinks, for example, at page 15, line 2 and lines 29-30; page 16, lines 23-24; page 17, line 16, page 23,line 13, page 25, line 26; and at page 26, line 26.

In accordance with Patent Office requirements, the relevant passages of the Specification have been amended to delete hyperlinks.

The recitation of SEPHAROSE has been noted. The Patent Office requires that it be written in all capital letters or denoted with the registered trademark symbol, and be accompanied by generic terminology.

Applicants have amended the Specification to capitalize all trademarks of which they are aware.

The Abstract has been objected to for failure to specify the gene elected for examination.

In the interest of advancing prosecution, Applicants have amended the Abstract to recite the elected species.

The Title of this application has been objected to as allegedly not descriptive.

In the interest of advancing prosecution, Applicants have amended the title in accordance with the suggestion of the Examiner.

The Information Disclosure Statement

The listing of references in the Specification is alleged not to be a proper information disclosure statement.

Applicants respectfully clarify that the listing of the references in the Specification was not intended to serve as an Information Disclosure Statement, but rather it was intended to serve as a bibliography. Those references for consideration in an information disclosure statement were listed on the appropriate form document which has already been provided to the US PTO.

The Objections to the Claims

Claims 3, 5, 11 and 12 have been objected to for inconsistency in referring to molecule and sequences.

In the interest of advancing prosecution, Applications have amended claims 5 and 11 for consistency.

Claim 11 is allegedly technically incorrect. Claim 1 has been amended such that it already comprises a promoter, therefore the vector of claim 11 now comprises two promoters. The Patent Office has requested amendment of claim 11 to replace "in operable linkage the nucleic acid according to claim 1 and a plant expressible promoter" with "the nucleic acid of claim 1 wherein the regulatory sequence is a promoter that functions in plants."

In the interest of advancing prosecution, Applicants have amended claim 11 as requested by the Examiner.

Claims 4 and 12 have been objected to as allegedly being of improper dependent form. Cancellation or amendment is required.

The Patent Office has taken the position that for claim 4, the polypeptide in claim 4 can be encoded by the nucleic acid sequence of SEQ ID NO:1; therefore the statement that it is encoded by SEQ ID NO:1 does not further limit the polypeptide. Given the current claim construction, claim 4 depends only on the polypeptide. The Patent Office has suggested that claim 4 be amended to recite "wherein the nucleic acid comprises SEQ ID NO:1".

In the interest of advancing prosecution, Applicants have amended claim 4 as suggested by the Examiner. However, Applicants note that there are many

synonymous coding sequences for a particular amino acid sequence. Thus, it is believed that reciting the specific coding sequence of SEQ ID NO:1 does indeed limit the claim.

For claim 12, the limitation that the promoter is heterologous to the nucleic acid is already included because the independent base claim (1) includes the recitation that "said sequences are not associated together in nature".

In the interest of advancing prosecution, claim 12 has been canceled without prejudice as it appears to be redundant over claim 1. In view of the foregoing statements and the amendments to the claims, Applicants request that the objections be withdrawn.

The Rejections under 35 U.S.C. 112, second paragraph

Claim 3-5 and 25 have been rejected under 35 U.S.C. 112, second paragraph, as allegedly indefinite. Applicants respectfully traverse this rejection.

Claim 3 recites the limitation "the amino acid molecule" in lines 1-2. There is said to be insufficient antecedent basis for this limitation. In addition, claim 3 recites a list of sequences when only SEQ ID NO:2 was elected for prosecution. The claim has been interpreted broadly to encompass fragments of the elected sequence and polypeptides with approximately 50% identity to SEQ ID NO:2.

Claim 3 has been canceled without prejudice; thus, this aspect of the rejection has been rendered moot.

Claims 4 and 5 are also constructed in a way that does not clearly limit the nucleic acid. Again, the claims are broadly constructed to encompass fragments of SEQ ID NO:2 and polypeptides with approximately 50% similarity to SEQ ID NO:2.

In the interest of advancing prosecution and without acquiescing to this rejection, claim 1 has been amended to delete recitation of "fragments thereof". Claim 4 has been amended to depend from claim 1. Neither claims 4 and 5 nor the base claims from which they depend now recite the "50% similarity".

Claim 25 is alleged to lack proper antecedent basis. The Examiner has further noted that only one sequence has been elected for prosecution.

In the interest of advancing prosecution and without acquiescing to the rejection, claim 25 has been canceled without prejudice.

In view of the foregoing statements and the amendments to the claims, Applicants respectfully maintain that the requirements for definiteness are met and the rejections should be withdrawn.

The Rejections under 35 U.S.C. 112, first paragraph

Claims 1-5, 11-13, 16 and 25 have been rejected under 35 U.S.C. 112, first paragraph, as allegedly failing to comply with the written description requirement, and claims 1-5, 11-13, 16 and 25 have been rejected under 35 U.S.C. 112, first paragraph, as the Specification is alleged to provide enablement for nucleic acids other than those encoding full length SEQ ID NO:2 or those encoding polypeptides with about 50% similarity to SEQ ID NO:2. Applicants respectfully traverse both rejections.

The Patent Office has characterized the claims as drawn to nucleic acids encoding a polypeptide or fragment thereof having galacturonosyl transferase activity and to polypeptides or fragments with 50% similarity to SEQ ID NO:2, and to vectors and plants comprising same. Claim 3 has been interpreted to encompass fragments of SEQ ID NO:2 and polypeptides with about 50% identity to SEQ ID NO:2.

The Examiner has noted that no fragments were described with GalAT activity and has alleged that no polypeptides with 50% identity to SEQ ID NO:2 were known to have that enzyme activity. The Examiner has also cited Lazar et al. in support of the premise that substitutions in proteins do not produce predictable results, and she has alleged that the Specification does not provide guidance for which amino acids can be deleted and which regions of the protein can tolerate insertions and still produce a functional enzyme.

In the interest of advancing prosecution and without acquiescing to the rejection, Applicants have amended claims 1 and 2 to delete recitation of "or fragments thereof", thus rendering part of both of the Section 112, first paragraph, rejections moot.

With respect to the recitation of 50% similarity, Applicants respectfully note that Specification provides a list of sequences which Applicants have stated encode active GalAT polypeptides (see page 19). Certainly it is well known in the art that some variation in sequence can be tolerated so that enzymatic activity could be maintained, and the Specification teaches, at page 22, first full paragraph. In addition, Figure 7 provides conserved amino acids in proteins of the GALAT gene family. The art knows that strictly conserved amino acids should not be varied. Thus, Applicants have provided certain guidance concerning parts of the protein which should be conserved. New claim 26 recites a nucleic acid comprising a (nucleotide) sequence with at least 90% sequence identity to SEQ ID NO:1 and encoding a polypeptide having GALAT1 activity. Support is found at page 59, first paragraph, for example. Applicants have stated that polypeptides with at least 50% sequence identity to the protein of SEQ ID NO:2 have GALAT activity, and the Patent Office should accept the inventors' assertions in their field of scientific expertise.

The relevant arts to this invention are biochemistry and molecular biology, and those of ordinary skill in that art are highly educated (most having advanced degrees)

and technically sophisticated. Therefore, Applicants respectfully maintain that the present Specification, taken with what is well known to the art, enables the practice of the invention as claimed without the burden of undue experimentation. Applicants have taught conserved regions of the protein, and methodology is known to establish whether or not a sequence falling within the scope of the instant claims has the requisite function.

In view of the foregoing arguments and the amendments to the claims, Applicants respectfully maintain that the claims are adequately supported by a fully enabling disclosure and appropriate written description of the claimed subject matter. Accordingly, Applicants respectfully request the withdrawal of this rejection.

The Rejections under 35 U.S.C. 102

Claim 16 has been rejected under 35 U.S.C. 102(b) as allegedly anticipated by US Patent No. 5,294,593. Applicants respectfully traverse this rejection.

The cited patent is said to teach a seed which is the progeny of a parent plant, citing columns 4-11 and all claims. The seeds of the cited patent are said to be indistinguishable from nontransgenic seeds encompassed by instant claim 16. The Patent Office has suggested amending the claim to recite "wherein said progeny comprises said expression vector".

In the interest of advancing prosecution and without acquiescing to the rejection, Applicants have amended claim 16 to recite "wherein said progeny comprises the nucleic acid of claim 1". While Applicants appreciate the suggestion of language, an alternate expression has been chosen, i.e., one that does not require the incorporation of the entire expression vector into the transgenic plant or its progeny. It is known that certain plant transformation techniques provide for the incorporation of less than the entire expression vector, but rather only the relevant portion which determines a marker

or trait of interest. However, it is Applicants' position that the present amended claim language clearly distinguishes the claimed invention from the nontransgenic seed of the cited reference.

In view of the foregoing discussion and the amendment to the claim, Applicants respectfully request the withdrawal of the rejection.

The Allowable Subject Matter

Nucleic acids that comprise a polynucleotide that encodes a protein comprising SEQ ID NO:2 are deemed allowable.

Conclusion

In view of the foregoing, this case is considered to be in condition for allowance and passage to issuance is respectfully requested.

If there are any outstanding issues related to patentability, the courtesy of a telephone interview is requested, and the Examiner is invited to call to arrange a mutually convenient time.

This response is accompanied by a Petition for Extension of Time and payment in the amount of $525.00 as required by 37 C.F.R. 1.17(a) by charge to Deposit Account No. 07-1969. If any additional fees, or any further extensions of time, are due pursuant to 37 C.F.R. 1.16-1.17, please charge the appropriate amount due to Deposit Account No. 07-1969.

Respectfully submitted,
/donnamferber/

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